

KRESADLO, Z.

621.316.722.4

4611. The design of a pure ohmic voltage divider for  
h.v. Z. KRESADLO. *Elektrotech. Obsor.* 41, No. 12,  
672-6 (1966), in Czech.

Conventional ohmic voltage dividers have not as a rule a purely ohmic characteristic due to their inherent inductance  $L$  and capacitance  $C$ . The behaviour of such quasi-ohmic dividers is treated mathematically in considerable detail. It is found that it is identical with the behaviour of a truly ohmic resistance connected in series with a line with a characteristic impedance  $\sqrt{L/C}$ . In order to suppress wave reflection at the junction of line and resistance,  $R$  must be made equal to  $\sqrt{L/C}$ . If the known expressions for the resistance, inductance and capacitance of the toroidal winding of the resistance band are applied to this formulae, the width  $b$  of the resistance band of the divider can be calculated (for a given wire diameter and width of the bifilar loop) which will produce a truly ohmic characteristic.

H. NOREL

12

KREČADLO, Z.

"Dynamic hysteresis loop and its measure." Detailed theoretical investigation of the phenomena involved and of the various measuring methods and description of the results of measurements obtained with a material having a pronounced rectangular hysteresis loop, applying various speeds of magnetisation reversal. by Z. Kresadlo and J. Kubrycht.

SG: ELEKTROTECHNICKÝ OBZOR (Electrical Engineering Review, Czechoslovakia)  
Vol. 43, No. 3, March 1954

KRESADLO, Z.

A new type of magnetic core in high-voltage electrical engineering. Tr. from the German. p. 522.  
(Elektrotechnický Obzor, Vol. 45, no. 10, October 1956. Czechoslovakia)

SO: Monthly List of East European Accessions. (EEAL) LC. Vol. 6, No. 6, June 1957. Uncl.

KRESAD O, 2.

"Calculation of the time of current over-lapping in contact rectifiers.

p. 91 (Elektrotechnicky Obzor. Vol. 47, no. 2, Feb. 1958, Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) IC, Vol. 7, No. 6, June 1958

KRESADLO, Z.

"V. Salamon's Matematika pro regulaci a automatisaci (Mathematics of Control and Automotization); a book review.

p. 109 (Elektrotechnický Obzor. Vol. 47, no. 2, Feb. 1958, Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) IC, Vol. 7, No. 6, June 1958

KRESADIO, Z.

Thermal control of the permissible load of bus bars. p. 453.

ELEKTROTECHNICKY OBZOR. (Ministerstvo tezkého strojírenství a  
Československé vědecká technická společnost pro elektrotechniku při  
Československé akademii věd) Praha, Czechoslovakia. Vol. 48, no. 9, Sept. 1959.

Monthly list of East European Accessions (EFAI) LC, vol. 9, no. 1, Jan. 1960.

Uncl.

KRUSADLO, Zdr., inz., kandidatekhn tekhnicheskikh nauk

A superconducting solenoid. E1 tech obzor 50 no.12:691-692  
D '61.

KRESADLO, Zdenek, inz., kandidat technickych ved, laureat  
Státní ceny Klementa Gottwalda

New aspect of the flux reversal of ferromagnetic materials.  
El tech obzor 51 no.8:383-390 Ag '62.

1. Státní výzkumný ústav silnoproude elektrotechniky.



KRESADLO, Z., inz., kandidat technickych ved

Magnetohydrodynamic condenser. El tech obzor 52 no.2:102-103  
F '63.

KRESADLO, Zdenek, inz., kandidat technickych ved

Calculation of a frequency tripler in basic connection.  
El tech obzor 52 no.10:519-525 0 '63

1. Statni vyzkumny ustav silnoprroude elektrotechniky.

KRESADLO, Zdenek, inz., kandidat technickych ved

"Homography" by [prof., dr.] V. Pleskot. Reviewed by Zdenek  
Kresadlo. El tech obzor 52 no.10:575 0 '63.

KRESADLO, Zdenek, inz. CSc.

Electronics and quanta. El tech obzor 53 no.9:500-503 S '64.

KRESAK, E.; KRESAKOVA, M.; KOHOUTEK, I.

A note on the article "On the hyperbolic velocities of sporadic meteors from the diurnal and seasonal variation." Riad. str. Cz 15 no. 6: 255-256 '64.

1. Astronomical Institute of the Slovak Academy of Sciences, Bratislava (for Kresak and Kresakova). 2. Astronomical Institute of the Czechoslovak Academy of Sciences, Prague (for Kohoutek).



"The Soviet Union: The Report of the U.S. Commission on  
Soviet Activities (U.S. House of Representatives, Committee on  
Un-American Activities, Subcommittee on Investigations, 1954-1955,  
Vol. 1, No. 1, May 1955, pp. 1-10.)

Vol. 3, No. 3.

SO: Monthly List of East European Accessions, Library of Congress, March 1954, Incl.

KRESAK, L.

KRESAK, L.; VOZAROVA, M. "The Perseids, 1952. I. Structure of the Perseid Meteor Stream. II. Statistics of Magnitudes and the Age of the Perseid Meteor Stream." p. 128. (Biulleten Astronomicheskikh Institutov Chekhoslovakii. Bulletin of the Astronomical Institutes of Czechoslovakia. Vol. 4, no. 6, Dec. 1953. Praha).

SO: Monthly List of East European Vol. 3, No. 6  
Russian Accessions, Library of Congress, June 195<sup>4</sup>, Uncl.



KRESAK, L.

On a criterion concerning the perturbing action of the earth on meteor streams [in English with summary in Russian]. Biul.astron.inst.Chekh. 5 no.3:45-49 Je '54. (MLRA 7:6)

1. Astronomical Observatory of the Slovak Academy of Sciences, Skalnaté Pleso. (Perturbation) (Gravity) (Meteors)

KRESAK, L.

"On the collisional hypothesis of the origin of the Perseid meteor stream."

p. 7 (Prace. Contributions, Vol. 2, 1957, Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, no. 9,  
September 1958

KRE3AK, L.

"On the distribution of cometary orbits of extremely short perihelion distances."

p. 19 (Prace. Contributions, Vol. 2, 1957, Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, no. 9,  
September 1958

KRESAK, L.

"The motion of the periodic comet, Tuttle-Glacobini-Kresak, 1951-1956."

p. 57 (Prace. Contributions, Vol. 2, 1957, Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, no. 9,  
September 1958

KRESAK, L.

MILITARY & NAVAL SCIENCES: GENERAL

Periodical NASA VEDA. Vol; 5, no. 10, Oct. 1958.

KRESAK, L. 10th Congress of the International Astronomical Union in Moscow. p. 456.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, no. 3, March, 1959. Uncl.

KRESAK, L.

Multiple fall of Pribram meteorites photographed. Pt.5. Biul astr  
Cz 14 no.2:49-52 '63.

1. Astronomical Institute of the Slovak Academy of Sciences, Bratislava.

KRESAK, L.

On the variations in frequency of meteorite falls. Biul astr Cz  
14 no.2:52-64 '63.

1. Astronomical Institute of the Slovak Academy of Sciences, Bratislava.

KRESAK, I.

The latitude variation of the meteor shower influx. *Publ astr*  
Cz 15 no.2:53-62 '64.

1. Astronomical Institute, Slovak Academy of Sciences, Bratislava.



KRESAK, L.

A relation between the orbits and magnitude distribution of  
meteors. Biul astr Cz 15 no.5:190-201 '64

1. Astronomical Institute, Slovak Academy of Sciences, Bratislava.

KRESAK, L. KRESAKOVA, M.

The variations in frequency of bright photographic meteors.  
Biul astr Cz 16 no.2:81-88 '65.

1. Astronomical Institute of the Slovak Academy of Sciences,  
Bratislava. Submitted July 5, 1963.

100-67

AT6034887

SOURCE CODE: CZ/2515/66/003/000/0030/0074

AUTHOR: Kresak, L. --Kresak, L.; Kresakova, M.

ORG: none

TITLE: Density distribution of telescopic meteors around the earth's orbit

SOURCE: Skalnate Pleso. Astronomicke observatorium. Prace, v. 3, 1966, 39-74

TOPIC TAGS: meteor, meteor observation, telescopic meteor, faint meteor, meteor density distribution, sporadic meteor, meteor shower, meteor brightness, space hazard, space vehicle meteoric risk, meteor impact probability

ABSTRACT: The density distribution of faint meteors around the earth's orbit was investigated on the basis of 1397 telescopic meteor observations (4573 meteors recorded during a net time of 1364 hours) obtained at the Skalnate Pleso Observatory in 1946--1959. The variation in spatial density of meteors with solar longitude was determined for three different models of apparent radiant distribution. It is shown that no stable model can satisfactorily account for the genuine variations in meteor rates. The remaining variation is related to the distribution of

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L 07922-67

ACC NR: AT6034887

2

approaching short-periodic cometary orbits, indicating a cometary origin for at least a part of the sporadic meteors. Some evidence suggests a marked concentration of telescopic meteor orbits to the plane of the ecliptic. In the magnitude range of 6--9<sup>m</sup> the major meteor showers, known from photographic and naked-eye observations, appear at considerably reduced strength; on the other hand, several showers composed predominantly of faint meteors can be seen. On the whole, the contribution of meteor showers to the sporadic background lessens with decreasing meteor brightness. This fact affects the variations of meteoric danger to space vehicles, which are relatively moderate at the level of impact probability, 10<sup>-6</sup>m<sup>-2</sup>day<sup>-1</sup> (2-mm penetration of aluminum skin). Another increase of the amplitude of these variations, suggested by observation of the faintest radio meteors and, in particular, by direct impact measurements on artificial satellites, evidently occurs lower in the scale of particle sizes. The authors are greatly indebted to all members of the staff of the Skalnate Pleso Observatory who participated in the observations included in the study. The names of all individuals and their share of participation in the program are given in this and a previous article. The authors also thank Mrs. L. Durkovicova and Mr. A. Aldor for their effective aid in the numerical computations. Orig. art. has: 9 figures, 8 tables, and 3 formulas. [Authors' abstract,

10/SUBM DATE: none/ORIG REF: 007/DOV REF: 003/OTH REF: 027/

KRESAK, Jan

International socialist distribution of production in the chemical industry. Chem prum 13 no.1:36-38 Ja '63.

1. Ministerstvo chemického prumyslu.

KRESAK M.

CZECHOSLOVAKIA/Farm Animals. Honey Bee

Q-6

Abs Jour : Ref Zhur - Biol., No 8, 1958, No 35778

Author : Kresak Milan

Inst : Not Given

Title : Remarks on the Problem of the Fight Against Woods from the  
Point of View of Beekeeping (Zemochaniye k problemu bor'by  
s sornyskani s tochki zroniya interesov pchelovodstva)

Orig Pub : Pol'nokhospodarstvo, 1957, 4, No 2, 402-404

Abstract : During the plowing of fallow lands in the arid and semi-  
arid regions of Slovakia, the flowering weeds, together with  
honey bees working on them, are sometimes plowed in. It  
is quite easy to avoid these losses in bees if the plowing  
is done during the hours when the bees are not working, or  
if a board is fixed in front of the plow in order to drive  
away the bees.

Card : 1/1

hc

KRESAK, L. KRESAKOVA, M.

The variations in frequency of bright photographic meteors.  
Biul astr Cz 16 no.2:81-88 '65.

1. Astronomical Institute of the Slovak Academy of Sciences,  
Bratislava. Submitted July 5, 1963.

1. 58322-67

ACCT: AT6934887

SOURCE CODE: CZ/2515/66/003/000/0039/0074

3/  
27

AUTHOR: Kresak, L. --Kresak, L.; Krenakova, M.

ORG: none

TITLE: Density distribution of telescopic meteors around the earth's orbit

SOURCE: Skalnate Pleso. Astronomicke observatorium. Prace, v. 3, 1966,  
39-74

TOPIC TAGS: meteor, meteor observation, telescopic meteor, faint meteor,  
meteor density distribution, sporadic meteor, meteor shower, meteor brightness,  
space hazard, space vehicle meteoric risk, meteor impact probability

ABSTRACT: The density distribution of faint meteors around the earth's orbit was investigated on the basis of 1397 telescopic meteor observations (4573 meteors recorded during a net time of 1364 hours) obtained at the Skalnate Pleso Observatory in 1946--1959. The variation in spatial density of meteors with solar longitude was determined for three different models of apparent radiant distribution. It is shown that no stable model can satisfactorily account for the genuine variations in meteor rates. The remaining variation is related to the distribution of

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L 09922-67

ACC NR: AT6034887

2

approaching short-periodic cometary orbits, indicating a cometary origin for at least a part of the sporadic meteors. Some evidence suggests a marked concentration of telescopic meteor orbits to the plane of the ecliptic. In the magnitude range of 6--9<sup>m</sup> the major meteor showers, known from photographic and naked-eye observations, appear at considerably reduced strength; on the other hand, several showers composed predominantly of faint meteors can be seen. On the whole, the contribution of meteor showers to the sporadic background lessens with decreasing meteor brightness. This fact affects the variations of meteoric danger to space vehicles, which are relatively moderate at the level of impact probability,  $10^{-6} \text{m}^{-2} \text{day}^{-1}$  (2-mm penetration of aluminum skin). Another increase of the amplitude of these variations, suggested by observation of the faintest radio meteors and, in particular, by direct impact measurements on artificial satellites, evidently occurs lower in the scale of particle sizes. The authors are greatly indebted to all members of the staff of the Skalnate Pleso Observatory who participated in the observations included in the study. The names of all individuals and their share of participation in the program are given in this and a previous article. The authors also thank Mrs. L. Durkovicova and Mr. A. Aldor for their effective aid in the numerical computations. Orig. art. has: 9 figures, 8 tables, and 3 formulas. [Authors' abstract]

REF: 007/OTI REF: 027/



I. 09923-67

ACC NR: AT6034888

6

independence of geocentric velocity, was found. All seven major showers under investigation yielded a pronouncedly lower value of  $\alpha$  than their sporadic background, which was confirmed by a significant lack of shower meteors in the telescopic magnitude range. Attention was paid to the variation of the magnitude function with the position within individual streams and to its changes with magnitude. Some anomalies associated with the evolution of meteor streams were established. The author expresses sincere thanks to the directors of the Skalnaté Pleso Observatory under the supervision of which the observation program was carried out by Dr. A. Bečvar (initiator of the program), Dr. V. Guth, and Dr. L. Pajdusková. During the preparation of the paper, the discussions, advice, and criticism of Dr. V. Guth, Dr. Z. Čepička and Dr. L. Kresák were of great value. The author is indebted to Mr. A. Aldo, who effectively assisted in the preparation and numerical treatment of the observation data. The author lists the names of all observers who over a period of 16 years collected the data on tens of thousands of meteors. Orig. art. has: 14 figures, 27 tables, and 28 formulas. [Author's abstract]

SUB CODE: 08/ SUBM DATE: none/ ORIG REF: 013/ SOV REF: 005/  
 OTH REF: 000/

KRESAKOVA, Mariita

SURNAME, Given Names

Country: Czechoslovakia

Academic Degrees: /not given/

Affiliation: Astronomical Institute, SAV /Slovenska akademie ved; Slovak  
Academy of Sciences/ (Astronomicky ustav SAV), Bratislava.

Source: Bratislava, Nase Veda, Vol VIII, No 4, 1961, pages 198-202.

Data: "Collision of Earth With Meteorites and Its Consequences."

GPO 981643

KRESALO, M.N.

Machines and tractors are ready for spring work. Mekh.sil'hosp.  
10 no.2:13 F '59. (MIRA 12:6)

1. Glavnyy inzhener Dvorichanskoy remontno-tekhnicheskoy  
Khar'kovskoy oblasti.  
(Agricultural machinery--Maintenance and repair)  
(Tractors--Maintenance and repair)

S/078/62/007/006/019/024  
B119/B138

AUTHORS: Distanov, B. G., Kresal'naya, L. Z., Stepanova, N. S.,  
Kipriyanova, S. S.

TITLE: Production of high-purity alkali halide salts

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 6, 1962, 1464-1465

TEXT: The authors purified the salts LiCl, NaCl, KCl, KBr, NaI, RbI, CsI, KI, NaNO<sub>3</sub>, and CaCl<sub>2</sub> by extracting concentrated aqueous solutions of them with solutions of dithizon and o-hydroxyquinoline in carbon tetrachloride (at pH 7 - 7.5 and pH 5 - 6, respectively), and then passing the salt solutions through a chromatographic column (filling: Al<sub>2</sub>O<sub>3</sub> and channel black in layers). The salts purified of Fe, Mn, Cu, Ni, and Co contained impurities of only  $1 \cdot 10^{-5}$  -  $1 \cdot 10^{-6}\%$ , and are suitable for the production of single crystals. There are 2 tables.

SUBMITTED: August 7, 1961

Card 1/1

L 43589-65 EWT(m)/EWP(t)/EWP(b) JD

ACCESSION NR: AT5009572

Z/0000/62/000/000/0064/0064

19

18

AUTHOR: Distanov, B.G.; Kresal'naya, L.Z.; Stepanova, N.S.

12+1

TITLE: Application of the liquid extraction method to the preparation of alkali halides and other high-purity salts

SOURCE: Konferentsiya o monokristalakh. 4th, Turnov, 1961. Sbornik referatov. Turnov, VUM, 1962, 64

TOPIC TAGS: alkali halide, salt purification, liquid extraction, heavy metal extraction, organic complex, dithizone, hydroxyquinoline, column chromatography, alumina

ABSTRACT: A promising and efficient method of purification by which heavy metals can be removed from salts is liquid extraction of the impurities, based on the "loss of affinity for water" of complex compounds formed by the ions of the impurities with various organic complex-forming agents. The method was applied to the following salts: LiCl, NaCl, KCl, KBr, NaI, RbI, CsI, KI, NaNO<sub>3</sub>, and CaCl<sub>2</sub>. The technique consisted of treating concentrated solutions of these salts with solutions of dithizone and ortho-hydroxyquinoline in carbon tetrachloride, then extracting the iron and heavy-metal impurities

Card 1/2

L 43589-65

ACCESSION NR: AT5009572

as dithizonates and hydroxyquinolates. Final purification was accomplished with a chromatographic column (alumina and channel black) to remove the remaining impurities and complex forming agents. Orig. art. has: 1 table.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov, Khar'kov  
(All-Union Scientific Research Institute of Single Crystals)

SUBMITTED: 00

ENCL: 00

SUB CODE: IC

NO REF SOV: 003

OTHER: 000

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Card

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L 35066-65 EWT(m)/EWP(t)/EWP(b) IJP(c) JD/XG

ACCESSION NR: AP5008517

S/0286/65/000/006/0019/0019

AUTHOR: Rybkin, Yu. F.; Lebed', V. I.; Kresal'naya, L. Z.; Kipriyanova, S. G.; Smirnova, O. M. 22  
B

TITLE: A method for producing halides of alkali metals. Class 12, No. 169080

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 6, 1965, 19

TOPIC TAGS: alkali halide, alkali metal

ABSTRACT: This Author's Certificate introduces a method for producing halides of alkali metals, e.g. iodides and bromides, from a halogen and a compound which contains a metal. Highly concentrated halide solutions are produced by using an amalgam of the appropriate metal and carrying out the reaction in the halide of this metal.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov (All-Union Scientific Research Institute of Single Crystals)

SUBMITTED: 21Jan63

NO REF SOV: 000

Card 1/1

ENCL: 00

OTHER: 000

SUB CODE: GC, IC

SHLIPCHEVO, S.B., kand. tekhn. nauk; RUZENKO-GRITSYUK, G.Ye., inzh.;  
FEDICH, N.G., inzh.

Studying the local hydraulic resistance of a pipe bend in  
the flow of feed molasses. Pishch. prom. no. 1:138-142 '65.  
(MIRA 18:11)

KRESANEK, K.

Changes of proteins in the blood serum in some inflammatory  
rheumatic diseases. 1-st communication. Fysiat.vest., Praha 33 no.3:  
91-96 June 55.

1. Z Vyskumneho ustavu reumatickych chorob, vysunuteho pracoviska v  
Piest'anoch, prednosta doc. MUDr S.Sit'aj.

(BLOOD PROTEINS, in various diseases  
rheum. arthritis)

(ARTHRITIS, RHEUMATOID, blood in  
protein changes)

EX REPPTA MEDICA Sec. 6 Vol 13/12 Internal red. Dec 50

6958. DETERMINATION OF SERUM GLUTAMIC-OXALACETIC TRANSAMINASE  
IN INFECTIOUS HEPATITIS - Kolorimetrické stanovenie sérovej glutamín-  
oxalacetovej transaminázy v priebehu infekčnej žltáčky - Kresánek E.  
and Okapec L. Výskumného Úst. Reum. Chor. Vysunuté, Pracoviško,  
Piešťanoch; Infek. Odd. OÚNZ, Piešťanoch - LÉK. OBZ. 1958, 7/9 (513-  
521) Graphs 4 Tables 3

The activity of serum glutamic-oxalacetic transaminase was determined in 30 pa-  
tients with infectious hepatitis. Values up to 838 U. (normal 40 U.) were found.  
The diagnostic and prognostic value of the determination in liver diseases is dis-  
cussed.  
Heyrovský - Prague

LAVICKA, J.; BLAHOS, J.; BRABENCOVA, H.; SITAJ, S.; VIRT, S.;  
MIKUS, F.; KRESANEK, E.; Spolupracovali: MESTAN, J., MUDr.,  
SPN - transfuzni stanice, Praha 10; KULICH, Vl., MUDr.,  
TS - Plzen; DZAVIK, Vl., MUDr., TS Gelnica; ZOLLNAYOVA,  
Trencin, MUDr.; Laboratorni prace: PREUSOVA, H.; NOVAKOVA, A.;  
LUSKOVA, K.

Normal levels of blood uric acid in various regions of Czechoslovakia. Cas. lek. cesk. 102 no.34:937-941 23 Ag '63.

1. Klinika chorob vnitrnich lekarske fakulty KU v Plzni, prednosta prof. dr. K. Bobek Vyzkumny ustav endokrinologicky v Praze, reditel doc. dr. K. Silink Vyzkumny ustav chorob revmatickych v Piestanech, reditel doc. dr. S. Sitaj Interne oddelenie OUNZ, Gelnica, veduci MUDR. F. Mikus.  
(URIC ACID) (BLOOD CHEMICAL ANALYSIS)

HOMOLA, V; KRESÁNEK, J.

Czechoslovakia

Bratislava, Pharmaceutický Obzor, No 10, 1962, pp 452-  
457

"Development of the Faculty of Pharmacognosia."

REMACOVA, A.; KRESANEK, J.

CSUR

Pharmacognostic Dept., Pharmaceutical faculty of Charles University  
(Katedra farmakognosie Farmaceutickej fakulty UK), Bratislava

Bratislava, Farmaceuticky Obzor, No 3; 1963, pp 110-116

"Evaluation of Anatomical Differences of Some Seeds in the Solanaceae Family"

(2)

CZECHOSLOVAKIA

KRESANEK, J.

Dept. of pharmacognosis, Faculty of Pharmacy, Comenius Univ.  
(Katedra farmakognosie Farmaceutickej fakulty UK), Bratislava

Bratislava, Farmaceuticky obzor, No 2, [Feb] 67, pp 52-60

"Palynology; an scientific discipline auxiliary to pharmacognostic practice."

CZECHOSLOVAKIA

VITTEK, J; KRESANEK, J

1. Chair of General Biology (Katedra pre vseobecnu biologiu), Bratislava; 2. Chair of Stomatology of the Medical Faculty UK (Katedra stomatologie Lekarskej fakulty UK), Bratislava; 3. Chair of the Pharmacology of the Pharmaceutical Faculty UK (Katedra farmakognozie Farmaceutickej fakulty UK), Bratislava

Bratislava, Farmaceuticky obzor, No 4, 1963, pp 163-169

"Drugs from Higher Plants with an Antibacterial Effect."



1. KRESANOV, A. I.
2. USSR (600)
4. Forests and Forestry - Periodicals
7. Readers comment on their periodical. Les i step' 4, no. 10, 1952.

9. Monthly List of Russian Accessions, Library of Congress, January, 1953. Unclassified.

KRESE, Ludvik, dipl. inž.

Conference of the tool makers of Yugoslavia at the Enamelled  
Ware Factory in Celje. Stroj vest 10 no.4/5:125 0 '64.

KRESELIDZE, Sh.Ya., kand.tekhn.nauk

Mechanized harvesting of tea. Trakt. i sel'khoz mash. 31 no.6:  
33-34 Je '61. (MIRA 14:6)

(Tea--Harvesting)

**CIA-RDP86-00513R0008264100**

1ST AND 2ND ORDERS		PROCESS AND PROPERTIES INDEX		3RD AND 4TH ORDERS	
<p><b>Encrustations on steel castings and a method for their prevention.</b> N. S. Kirschenovskii. <i>Livestoe Doko</i> 9, No. 8-9, 21-22 (1934); <i>Chem. Zentr.</i> 1935, II, 933. -- An investigation is reported of the behavior of various molding materials as regards their action on molten steels of different compn. Three different processes involved in the interaction between the molding materials and the molten steel were distinguished: (1) As a result of the high temp. of the molten steel, the elements of the molding materials form a liquid phase which cements the chief constituents. E. g., in molds of magnesite bound together with clay, a phase <math>MgO \cdot SiO_2 \cdot Al_2O_3</math> is formed. The layers so formed are impermeable to gases; however, as a result of the difference in coeffs. of thermal expansion of the steel and of this chill, such a layer is readily loosened from the surface of the casting. (2) If deoxidation has been incomplete, the steel contains oxides in the form of <math>FeO</math>, <math>MnO</math>, <math>Cr_2O_3</math>, etc., which react with the elements of the molding material. These layers are likewise impermeable to gases but can be removed from the casting only with difficulty so that the casting is heavily contaminated with numerous deposits firmly burned to it. A mech. surface treatment with a pneumatic chisel is necessary for the removal of such formations. (3) As a result of the high fluidity of the steel, the molten metal penetrates into the fine pores of the molding mixt. and forms a layer of sand and metal which cannot be removed from the surface of the casting. Chem. analysis of the burned-on encrustation showed its compn. to vary with that of the molding mixt. and that of the steel. In the casting of hard Mn steel in sand molds the major portion of the layer (70-80%) consisted of <math>SiO_2</math>, in addn. there was also present up to 25% <math>MnO</math>, up to 4% <math>Fe_2O_3</math>, up to 7% <math>Al_2O_3</math> and in one case even 0.41% <math>CaO</math>. When the same kind of hard Mn steel was cast in a molding mixt. consisting of 80% metallurgical magnesite and 20% clay the deposit consisted of about 17% <math>SiO_2</math>, 60% <math>MgO</math>, 0.6% <math>Al_2O_3</math>, 0.5% <math>Fe_2O_3</math>, 3.04% <math>MnO</math> and 0.7% <math>CaO</math>. In the casting of high-Cr steel in molds consisting of 92.4% <math>SiO_2</math>, 3.03% <math>Al_2O_3</math>, 1.97% <math>Fe_2O_3</math>, 1.98% <math>CaO</math> and 0.32% <math>MgO</math> the deposit contained 86.7% <math>SiO_2</math>, 3.24% <math>Al_2O_3</math>, 7.4% <math>FeO</math>, 0.98% <math>C</math>, 0.48% <math>MnO</math> and 0.31% <math>MgO</math>.</p> <p style="text-align: right;">M. G. Moore</p>					
<p>ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>					
<p>1ST AND 2ND ORDERS</p>					
<p>3RD AND 4TH ORDERS</p>					

KRESHCHANOVSKIY, N. G.

Technology

Casting stainless and high temperature steels; Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1941.

9. Monthly List of Russian Accessions, Library of Congress, May 1952 ~~1953~~, Uncl.

KRESHCHANOVSKIY, N. S.; GINSBURG, E. S.; KLYACHKO, Yu. A.; KUNIN, L. I.

"Effect of Boron on the Surface Tension of Kh15M25 Steel," Doklady Akademii Nauk  
SSSR 72 (1950) No 5, pp 927/929.

B-81524, 28 Dec 54

ZAPETAUEVA, L.P., KRESHCHANOVSKIY, N.S., KUNIN, L.L.

Metals

Cand. Technical Sci.

"Effect of Calcium on Crystallization and Surface Tension of Austenitic Nickel-Chromium Steel," Litey Proiz, No. 2, 1951.

PA 185T96



MEMORANDUM, N. D.

185T95

USSR/Metals - Cast Iron

Feb 51

"Titanium-Manganese Perlitic Malleable Iron in Automobile Building," N. D. Titov, ZIS

"Litey Proiz" No 2, pp 13, 14

Essential advantages of malleable iron with addn of titanium are increased plasticity, possibility of straightening parts in presses and better machinability than spheroidized manganese cast iron. Addn of 0.05-0.06% Ti is sufficient with Mn-content of 1.0-1.2%. Also examd effect of Mg-addn on properties of perlitic malleable iron.

185T95

KRESHCHANSKIY, N. S.

PA 19775

USSR/Metals - Steel, Composition, Properties Aug 51

"Effect of Calcium on Properties of Carbon Steel,"  
N. S. Kreshchanskiy, Cand Tech Sci, Ye. I. Kva-  
shina, Engr, TsentMASH

"Litey Proiz" No 8, PP 21, 22

Expts for introducing calcium into 0.2 and 0.3%  
carbon steel revealed that calcium eliminates col-  
umnar crystn, promotes fine-cryst structure, elim-  
inates Widmanstaeten structure in cast steel and  
increases plasticity. Addn of silicocalcium has

19775

USSR/Metals - Steel, Composition, Properties (Contd) Aug 51

no effect on primary and secondary crystn, but  
strength and plastic properties of steel are con-  
siderably improved. Illustrated by macro- and mi-  
crographs.

19775

KRECHENKOV, N. S.

Sovremennaya tekhnologiya polucheniya vysokokachestvennykh stal'nykh otlivok  
[Contemporary technology for obtaining steel castings of high quality]. Moskva,  
Mashgiz, 1952. 256 p.

SO: Monthly List of Russian Acquisitions, Vol 6 No 4, July 1953

KRESHCHANDVSKIY, N. S.

USSR/Engineering - Electric Furnaces Apr 52

"Cast Heating Units Made of Modified Alloys for Electric Resistance Furnaces," N. S. Kreshchanovskiy, Cand Tech Sci, A. D. Svanchanskiv, Engr, Moscow Power Eng Inst

"Litey Proizvod" No 4, pp 6-11

Investigates possibility of fabricating heating units by casting them out of alloys of nichrome and cromal types and studies modifying effect of Ca, Mg, Ba, Ce and Li. Introduction of earth and earth alkali metals permitted developing satisfactory technology of cast heaters obtaining sufficiently high density of alloys with high ohmic resistance and good mech properties. 213T64

USSR/Metallurgy - Nitrogen in Steel

Sep 52

"On the Problem of Melting Austenitic Chrome-Nickel Steels Alloyed With Nitrogen," V.I. Prosvirin, Dr. Tech Sci, N. S. Kreshchanovskiy, Cand Tech Sci, R.P. Zaletayeva, Engr

"Litey Proizvod" No 9, pp 22, 23

Establishes 0.3% as max Ni concn in steel under condition of obtaining sound castings. Optimum Ni content in steel with 15-17% Cr is 0.15-0.20%. Steel retains 50-60% of Ni introduced into melt in form of nitrided ferrochromium. Studies denitriding of steel

233T78

in liquid state under various conditions of heating. Concludes that holding of nitrogen steel at temps of melt and pouring, i.e., 1,550-1,480°, does not decrease considerably amt of N dissolved in steel.

KRESHCHANOVSKIY, N. S.

233T78

KRESHCHANOVSKIY, N. S. , Ed.

N/5  
615.911  
.K2

Hochwertiger Stahlguss. Berlin, Technik, 1955.

267 P. Illus., Diagr., Tables.

Translation from the Russian: Sovremennaya Tekhnologiya Polucheniya  
Vysokokachestvennykh Stal'nykh Otlivok, Moscow, 1953.

Added T.-P. in Russian.

Bibliography at the end of articles.

AKESHCHANNIKOV, N. S.

Journal of the Iron and Steel  
Institute  
Vol. 176 Part 3  
Mar. 1954  
Metallography

The Effect of Magnesium on the Surface Tension, Supercooling and Crystallization of Austenitic Steel. N. S. Kreshchenovskii and R. P. Zil'tanova. (*Litcinoe Proizvodstvo* 1953, 3, (3), 20-21). [In Russian]. After a theoretical discussion of the effect of magnesium on surface tension and crystallization processes of austenitic steel, experiments are described in which it was shown that the corresponding decrease in surface tension leads to easier formation of centers of crystallization and a lesser tendency to supercooling. Specimens of an austenitic chromium-nickel steel (16% Cr, 30% Ni), inoculated with different amounts of magnesium, were used. At 1420-1430°C, surface tension displayed a minimum at 0.2% Mg. The effect of magnesium on the primary crystallization of the steel is illustrated, and heating and cooling curves for the solidification range are given. These reveal the complete disappearance of supercooling when the steel is inoculated with 0.2% Mg.

KRESHCHANOVSKIY, N. S.

USSR/Miscellaneous-Metallurgy

Card 1/1

Authors : Kreshchanovskiy, N.S., Prosvirin, V. I., and Zaletayeva, R. P.  
Title : Effect of nitrogen on the surface tension and crystallization of austenite steel  
Periodical : Lit. Proizv. 1, 23 - 24, Jan-Feb 1954  
Abstract : The effect of nitrogen on the surface tension and crystallization of austenite nickel-chrome steel was investigated by means of a special but simple device. Surface tension originates as result of different attraction forces of molecules situated on the surface of phase separation and between molecules within the phase. The presence of nitrogen in austenite steel has practically no effect on primary crystallization. The dimension of the grain and the depth of expansion of the acicular crystallization zone in nitreous and nitrogenless steel remain unchanged. Six references. Table, graph, photo.

Institution: ....

Submitted : ....

*evaluation B-78539, 8 Sep 54*



*AS A MEDICAL HISTORY, N.S.*

V \*Experiments on Mechanizing and Perfecting the Techno-  
logical Process of Casting by the Lost-Wax Process. N. S. 116  
Krasichanovsky, M. L. Khenkin, N. K. Lavina, and M. N.  
Lobachev. *Trudy Vsesoyuznogo Nauchno-Issledovatskogo Instituta  
Tsvetnogo Metalla*, 1954, (2), 8-11. (In  
Russian). A number of steps in mechanizing the precision-  
casting process are outlined: prodn. of patterns by electro-  
forming, three-stage injection, mech. prepn. of the slurry,  
conveyor-loaded drying, boiling-water washing out of the wax,  
moulds after casting. —V. K.

*2/ RH*

KRESHCHANOVSKIY, N. S.

Effect of boron on the properties of cast austenitic steel of the 15% Cr-25% Ni type. N. S. Kreshchanovskiy, V. I. Prosvirin, and E. S. Ginzburg. Engrng. Principles 1954, No. 6, 10-10. Steels contg. C 0.05-0.10, Cr 14.50-15.01, Ni 24.69-26.17, Si 0.44-0.61, Mn 0.14-0.66% were melted in an acid crucible in a high-frequency furnace and alloyed with 0.007-0.15% B. Boron-free ingots were completely dendritic; 0.007% B appreciably decreases dendrites; 0.03% B sharply limits the dendritic zone, and 0.055% B produces finely cryst. structure unaffected by the rate of cooling. Boron addn. above 0.16% brings back dendrites and large grains. On heating at 1000 and 1200° for 24 hrs., 0.15% B increases grain size from no. 2 to no. 1/2 in the cast state and from 3.5 to 1/2 in the forged state. As little as 0.025% B leads to thinner sharp grain boundaries without affecting the quantity and the character of carbides. With B concns. up to 0.15% B, first a thickening of the boundaries is observed and then a separate B-rich phase is noted. More than 0.40% B causes the formation of a complex eutectic composed of austenite and a solid soln. of Fe borides and carbides. It melts at around 1250°, and the excess of the B-bearing phase passes into soln. above this temp. Carbide ppt. sepd. from steels quenched from 1000 to 1300° was 0.23-0.63% for B-free and 2.22-2.67% for steel contg. 0.15% B, both decreasing with higher temps. The ppt. obtained from annealed samples showed on x-ray analysis the presence of  $Cr_2C_3$  and of gamma solid soln. In B-free steels, while in 0.15% B steels besides it were found  $FeB$  and  $Fe_2B$ . Quenching from 1250°C fully dissolves  $Cr_2C_3$ , partially dissolves  $Fe_2B$ , but does not affect  $FeB$ . The 0.15% B specimens quenched from 1250° and aged at 650-750° for 5 2000 hrs. showed that B lowers the effect of hardening and that no structural changes occurred in 0.15% B steel while in the B-free one carbides easily pptd. at the grain boundaries. Heat treating in vacuum developed in 0.15% B steel a light-blue austenitic matrix and a bright-orange phase at the grain boundaries composed probably of a solid soln. of B in  $\gamma$ -Fe. Boron addn. lowers the impact strength of these steels, 0.15% B drops it from 28 to 5 kg. m. sq. cm. Surface tension of C 0.04, Si 0.26, Mn 0.040, Cr 15.44, Ni 26.03, S 0.023, P 0.021% steel increases with the B content, suggesting that B is surface active and can be adsorbed at the phase boundaries. It is adsorbed in surface layers during crystn. which dete. cryst. structure of the solidified metal.

J. D. Gut

37

KRESHCHANOVSKIY, N. S.

1163 Effect of Nitrogen Upon Surface Tension and Crystallization of Austenitic Steels. N. S. Kreshchanovskii, V. I. Prosvirko, and R. P. Zakharenko. Heavy Metals, Moscow, USSR, Translation no. 3442, 6 p. (From Litelnee Proizvodstvo, v. 5, no. 1, 1954, p. 23-24.)  
Previously abstracted from original. See item 8502, v. 3, June 1954.

KREKHCHANOVSKIY, N. S.

U S S R .

Improvement of the Mechanical Properties of Steel Cast by the Lost-Wax Process. N. S. Krehchanovskii, M. I. Khenkin, and M. N. Zimmering. (*Litetskoe Proizvodstvo*, 1954, (7), 20-24). [In Russian]. The possibility of improving the mechanical properties of carbon and alloy steel castings, produced by the lost-wax process, by heat-treatment or induction with cerium was investigated. Three carbon steels, a 1-27% Cr steel, and two 15/15 Cr-Ni steels were investigated. Cerium additions of 0.05-0.5% were made to the liquid metal, special specimens being cast for studying macro and microstructures, mechanical properties, slag inclusions, and dissolved gases. In correct amounts, cerium improved the properties, the effect being most marked at sub-zero temperatures. Various heat-treatments were also studied.

KRESHCHANOVSKIY, N.S., kandidat tekhnicheskikh nauk, redaktor; KRYLOV,  
~~P.I., inzhener;~~ redaktor; SOKOLOVA, T.F., tekhnicheskii redaktor;  
POPOVA, S.M., tekhnicheskii redaktor.

[Heat treatment and properties of cast steel; transactions of the  
All-Union Conference] Termicheskaya obrabotka i svoistva litoi  
stali; trudy vsesoiuznogo soveshchaniia. Pod red. N.S.Kreshcha-  
novskogo. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroitel'noi  
lit-ry, 1955. 355 p. (MLRA 8:12)

1. Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promysh-  
lennosti.  
(Steel—Heat treatment)

KRESHCHANSKIY, N. S., KHENKIN, M. L., ZEMMERING, M. H.

"Means of Improving the Mechanical Properties of Steel Castings." From the book, "Heat Treatment and Properties of Cast Steel." edited by N. S. Kreshchonovskiy, Moshgiz, Moscow 1955.

KRESHCHANOVSKIY, N. S.

"The Effect of Gases on the Crystallization and Properties of Austenitic Chromium-Nickel Steel." From the book "Heat Treatment and Properties of Cast Steel," edited by N. S. Kreshchanovskiy, Mashgiz, Moscow, 1955.

KRESHCHANOVSKIY, N.S., dokt. kand., kandidat tekhnicheskikh nauk.

Effect of gases on chromium-nickel steel. Trudy MNI no.17:223-238 '55.

(MLRA 9:7)

1. Kafedra tekhnologii metallov.

(Chromium-nickel steel) (Gases in metals)



KRESCHANOVSKIY, N. S.

18 37  
Influence of alloying elements on sulfur distribution in  
steel 728. S. Kreschchanovskiy and N. S. Kravchenko.  
Leningrad Press 1957, No. 6, 22 G. — A no. of 0.12 C.  
11 Cr, 0.7 Mo, 2 W, 0.3 V, 1.0 Ni ingots were made with  
the addn. of S<sup>m</sup> to which different modifiers were then added.  
Bauman prints show S segregations where they are absent  
on macroradiographic prints which were used in the study.  
S is distributed between branches of dendrites in the outer  
layers of ingots and along the grain boundaries in the inner  
ones. The effect on S distribution of modifiers, i.e. Zr, Al-  
Ba-Ca alloy, Li, Ce, Co is expressed by their influence on  
dendritic solidification. Zr and Al-Ba-Ca alloy increasing it  
and the rest having no effect.

J. D. Galt

MT

KRESHCHANOVSKIY N.S.

LADYZHENSKIY, Boris Nikolayevich; TUNKOV, Vladimir Pavlovich; ZVEREV, K.M.,  
inzh., retsenzent; KRESHCHANOVSKIY, N.S., kand.tekhn.nauk, retsenzent;  
TALANOV, P.I., prof., red.; SIROTIN, A.I., inzh., red.izd-va;  
BL'KIND, V.D., tekhn.red.

[Technology of preparing steel castings] Tekhnologiya izgotovleniya  
stal'nykh otlivok. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit.  
lit-ry, 1958. 255 p. (MIRA 11:4)  
(Steel castings)

*KRESHCHANOVSKIY, N.S.*

OZEROV, Vladimir Aleksandrovich; FIM'DMAN, Solomon Samoylovich; SHKLENNIK,  
Yan Ivanovich; KRESHCHANOVSKIY, N.S., kand. tekhn. nauk, retsenzent;  
KURCHMAN, B.S., inzh., nauchnyy red.; MODEL', B.I., tekhn. red.

[Lost-wax process in precision casting] Lit'e po vyplavlennym mode-  
liam. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry,  
1958. 321 p.

(MIRA 11:9)

(Precision casting)

SOV-128-58-7-8/20

AUTHORS: Kreshchanovskiy, N.S., Candidate of Technical Sciences,  
and Demin, M.P., Engineer

TITLE: Crack-Resistance of Cast Steel and Methods of Improving It  
(Treshchinoustoychivost' litoy stali i metody yey povysheniya.)

PERIODICAL: Liteynoye proizvodstvo, 1958, Nr 7, pp 17-21 (USSR)

ABSTRACT: Different existing theories explaining the formation of the  
so-called hot cracks, i.e. cracks forming in temperature above  
the transition of metal into elastic state, are reviewed  
[Ref.1-30] and discussed. It was concluded that the ef-  
fect of additions of various elements (cerium, boron, ti-  
tanium, calcium, etc.) on the intercrystalline bond and hence  
on the crack-resistance can be explained by the effect of these  
elements on the surface-active impurities forming adsorbed lay-  
ers on the surface of crystallites in the primary crystalli-  
zation process, i.e. when a phase forming on the crystallite

Card 1/2

SOV-128-58-7-8/20

Crack-Resistance of Cast Steel and Methods of Improving It

borders has high strength and plasticity, it increases the crack-resistance. Modification is considered as one of the most effective methods of influencing the adsorption processes. There are 10 graphs, 6 microphotographs, 1 table and 30 references, 25 of which are Soviet, 3 English and 2 German.

- 1. Steel castings--Fracture
- 2. Steel castings--Materials
- 3. Steel castings--Properties

Card 2/2

SOV/129-59-3-8/16

AUTHORS: Kreshchanovskiy, N.S. and Zabludovskiy, I.Ye.

TITLE: Influence of Inoculation Substances on the Crystallisation and Distribution of Sulphur in Cast Austenitic Steel (Vliyaniye modifikatorov na kristallizatsiyu i raspredeleniye sery v litoy austenitnoy stali)

PERIODICAL: Metallovedeniye i Termicheskaya Obrabotka Metallov, 1959, Nr 3, pp 33 - 37 (USSR)

ABSTRACT: The method of macro- and micro-autoradiography was used for studying the distribution of sulphur. For this purpose,  $S^{35}$  was introduced into the melt. The sulphur isotope was supplied in the form of a  $Na_2SO_4$  solution containing active sulphur. The steel was produced in an electric furnace with an acidic lining and to obtain a clearer picture, the S concentration in the steel was artificially increased to 0.04%. The active S was introduced into the molten steel prior to tapping the furnace so as to obtain 1  $\mu$  Cu per 1 kg of liquid metal. The produced steel was poured into hand ladles of 25 kg capacity. Inoculation was only applied in the second, third and fourth ladle and not in the first. After

Card 1/4

SOV/129-59-3-2/16

Influence of Inoculation Substances on the Crystallisation and  
Distribution of Sulphur in Cast Austenitic Steel

treatment with the appropriate substances, the steel was cast into earthen moulds. It was found that zirconium influences appreciably (see Figure 1b) the character of crystallisation of the steel; the zone of columnar crystals in the central part of the specimen decreased and the grain became finer. In the same way as in non-inoculated steel, the sulphur in zirconium-inoculated steel is distributed in the form of point inclusions between the dendrite axes. Dendrite crystallisation of the steel is pronounced in the periphery whilst equi-axial crystallisation is pronounced in the central zone of the casting. The sulphur was uniformly distributed along the entire cross-section. Inoculation with zirconium does not reduce the sulphur content of the steel. Cerium introduced in austenitic Cr-Ni steel to the extent of 0.3% has no appreciable influence on the character of the crystallisation (Figure 1, v). The cerium distribution, detected by means of  $Ce^{141}$ , is similar in shape and character to the distribution of sulphur (see Figures 2, v and 3, v).

Card2/4

SOV/129-59-3-8/16

Influence of Inoculation Substances on the Crystallisation and Distribution of Sulphur in Cast Austenitic Steel

Obviously, these inclusions are cerium sulphides which did not pass into the slag but remained in the metal. The cerium sulphides can be almost completely eliminated by inoculating the steel jointly with cerium and (0.05-0.15%) calcium; in this case, a part of the sulphides will be located in the dendrite axes. Steel inoculated with cerium contains 30% less sulphur than steel not thus inoculated. Calcium shows a considerable influence on the primary crystallisation of the steel. Whilst in the non-inoculated steel a strongly developed zone of columnar crystals was observed, steels treated with 0.5% calcium showed throughout their cross-section fine crystals and the zone of columnar crystals was only 5-6 mm wide. Inoculation with calcium did not result in any appreciable drop in the sulphur content of the steel (the sulphur content dropped from 0.039 to 0.036%). Thus, it was found that inoculation agents affect greatly the crystallisation of steel. For purifying austenitic refractory steel of sulphur and also for obtaining a more favourable sulphur

Card3/4



SOV/129-59-3-8/16

Influence of Inoculation Substances on the Crystallisation and  
Distribution of Sulphur in Cast Austenitic Steel

distribution, it is advisable to inoculate the steel  
simultaneously with cerium and calcium.  
There are 3 figures and 1 table.

ASSOCIATION: Moskovskiy energeticheskiy institut  
(Moscow Power Institute)

Card 4/4

18(7)

SOV/128-59-3-17/31

AUTHOR: Kreshchanovskiy, N.S. Candidate of Technical Sciences,  
Silyayev, A.F., Candidate of Technical Sciences,  
Sheshenev, M.F., Engineer

TITLE: The Influence of Small Admixtures of Foreign Matter  
on the Structure and on the Heat Resistance of Large  
Castings of Steel Type 12Kh11V2NMF-L.

PERIODICAL: Liteynoye Proizvodstvo, 1959, Nr 3, pp 39-42 (USSR)

ABSTRACT: It has been realized that the use of austenite type  
steel for castings of turbines and fittings operating  
at steam temperature of 600° to 610° Celsius is not  
suitable. The reasons are: high price and weak techno-  
logical qualities. Therefore during the recent years  
for this purpose perlite type and semi-ferrite type  
steel have been introduced in the Soviet Union and in  
foreign countries. The tests showed that perlite type  
and especially semi-ferrite type steel of the type  
Kh11 at correct alloying with Mo, W, V, and Nb is able  
to operate at the above said temperature conditions.

Card 1/2

SOV/128-59-3-17/31

The Influence of Small Admixtures of Foreign Matter on the Structure and on the Heat Resistance of Large Castings of Steel Type 12 XII V2 NMF-L

In case these foreign structure particles are mixed at correct proportion, this alloyed steel allows the production of large steel castings, which have the necessary heat resistance. This paper describes the tests made with steel of the type 12Xh11V2NMF-L, to which several small admixtures have been added. Laboratory and shop tests had been made with barium, cerium, zirconium and calcium metal. Small admixtures of these elements have promoted the cristallization of the steel. The shop tests have been carried out in an electric furnace of 4 tons capacity. These tests have been compared with the table established by Larsen-Miller. The best result showed an alloy with added aluminum, barium, and calcium. Tensile strength improved to 9,4 kg per square millimeter from 7 kg per sq. mm of steel without any admixture. Correspondingly the heat resistance was higher too. There are 7 tables, 9 graphs and 1 micro-photo.

Card 2/2

BUGACHEV, V.M., kand.tekhn.nauk, red.; IVANOV, D.P., doktor tekhn.nauk, nauchnyy red.; RABINOVICH, B.V., kand.tekhn.nauk, nauchnyy red.; MARIYENBAKH, L.M., doktor tekhn.nauk, nauchnyy red.; KRESHCHANOVSKIY, N.S., kand.tekhn.nauk, nauchnyy red.; SMIRNOVA, G.V., tekhn.red.

[Foundry practice; research and experiments] Liteinoe proizvodstvo; nauchno-issledovatel'skie i opytnye raboty. Trudy Vsesoiuznogo soveshchaniia. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1960. 250 p. (MIRA 13:10)

1. Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Liteynaya sektsiya.  
(Founding)

S/128/60/000/008/006/014  
A105/A029

AUTHOR: Kreshchanovskiy, N.S.

TITLE: The Problem of the Distribution of Calcium in Molded Steel

PERIODICAL: Liteynoye proizvodstvo, 1960, No. 8, pp. 31 - 33

TEXT: The effect of calcium on the crystallization of steel was reviewed in References 1 to 10. This article deals with the problem of distribution and solubility of calcium in carbon and alloyed steels by use of the radioactive isotope of calcium  $\text{Ca}^{45}$ , with a  $\beta$ -radiation of 0.2 Mev and a half life of 152 days. In the experiments steel was molten in an induction furnace and the percentage of calcium contained in compounds and in solid solutions was determined. At a total calcium content of 0.011 - 0.030% in carbon steel, only 0.0001 - 0.0003% is found in the solid solution. In austenite chrome-nickel steel the calcium content in the solid solution is 25 - 30 times lower than in the precipitate. Steel modified by 0.5% Ca has a considerably finer grain than that modified by 0.25% Ca. Calcium metal shows a strong effect on the decrease of grain size in carbon steel and also in austenite chrome-nickel steel. In carbon steel calcium is found in the form of inclusions of sulfides, oxides, nitrides, etc.

Card 1/2

S/128/60/000/008/006/014  
A105/A029

The Problem of the Distribution of Calcium in Molded Steel

In chrome-nickel steel calcium is found in the form of nonmetallic inclusions and intermetallic compounds. During electrolysis the intermetallic compounds are dissociated, calcium is converted to the ionic state and passes into the electrolyte. Calcium forms with nickel an intermetallide of the  $\text{CaNi}_5$  type with a hexagonal lattice showing the following parameters:  $a = 4.960 \text{ \AA}$ ,  $c = 3.948 \text{ \AA}$ ,  $c/a = 0.796$  (Ref. 19). There are: 1 table, 9 figures and 19 references: 15 Soviet, 3 English and 1 Swedish.

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AUTHOR: Kreshchanovskiy, N.S.

TITLE: Modification of cast steel

PERIODICAL: Liteynoye proizvodstvo, no. 2, 1961, 1 - 7

TEXT: Tests were carried out with austenite and carbon steels, in 0.5-ton induction furnaces, using mainly boron, calcium, cerium and magnesium as modifying agents. The tests proved that these elements which show a high surface activity, concentrate in the crystallizing alloy between the phases and usually reduce the interphase surface tension. The effect of the various modifying agents on surface tension depends on the structure of the steel. When modifying austenite chrome-nickel steel with nitrogen, the surface tension increases, when modifying ferritic chrome-steel, however, it decreases. For the various modifying agents used for X15H25 (Kh15N25) steel, the following results were obtained: the lowest surface tension can be obtained by adding 0.06% boron or 0.5% calcium or 0.3% magnesium. When 0.05% cerium is added the surface tension of the liquid metal increases, it decreases, when the cerium-concentration is raised to 0.2%. Metallographic studies show that all modifying agents which lower the surface ten-

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sion, contribute to the decrease of grain-size and to a reduction of the zone of acicular crystals. Calcium, magnesium, boron greatly reduce the grain-size, cerium has no noticeable effect in this respect. A coarsely crystalline structure develops also, when calcium, magnesium and boron are added in excess of the optimum amount. It was found that boron, titanium, magnesium and calcium reduce the undercooling of the metal. Besides affecting the crystallization process, the modifying agents also affect the composition, amount, character of carbide and other stabilizing phases. The cause of this is that some modifying agents are adsorbed not only at the boundary of the developing crystal grains, but also at the surface of separating phases, hereby impeding their separation from the solid solution. In boron-containing Kh15N25 steel, for instance, the structure does not change at any temperature and aging holding time while the separation of  $\text{Cr}_{23}\text{C}_6$  carbide at the boundary of the grain and within starts already at  $650^\circ\text{C}$  and at an extended holding time, when no boron is added. Vacuum-thermal tests on steels with and without boron content show that this element forms an adsorbent layer on the interphase surface. When modifying carbon steels, the effect of the modifying agents is more intricate as they can affect the primary and the secondary crystallization. The modifying agents eliminate the dendritic crystallization and at the same time they reduce the size of austenite grains of primary

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crystallization. The smallest grain size is obtained with 0.005% boron, 0.1% magnesium, 0.15% calcium and 0.2% cerium. The inter-dendrite distribution of calcium and cerium in carbon steels, determined by autoradiography, also shows the surface activity of these elements. The above modifying agents also affect the microstructure of steel: the "Widmanstätten" structure disappears and the ferrite grains adopt a globular shape. Small additions intensify the separation of the ferrite constituent from austenite; with additions above the optimum amount, a phase separates at the grain boundary which the modifying agent penetrates. Tests to determine the effect of modifying agents on the mechanical properties of steel were carried out with steel smelted in 50 and 500-kg induction furnaces, deoxidized with 0.1% aluminum and the modifying agents added into the ladle. A maximum increase in toughness is obtained with cerium, which also increases the ductivity to such an extent, that the steel satisfies the standard requirements without annealing and normalization. Boron, added in amounts of at least 0.0025% improves the toughness and ductivity to some extent, due to the more thorough deoxidation of the metal; it also increases the hardenability and the absolute hardness-value of the hardened surface-layer. Therefore, boron-modified steels have a great wear resistance. When the modifying agents exceed the

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optimum amounts, the mechanical properties of steels deteriorate, due to phases separating at the grain boundaries and containing modifying elements. The toughness of modified steel will be higher when smelted in an acid furnace than when smelted in a basic one. The improving effect of the modifying agents on the mechanical properties of acid steel is caused by the removal of high-silicon compounds from the grain boundaries which, being surface-active elements, separate there. The modification of austenite-type chrome-nickel steels increases their ductility and heat resistance. The best results are obtained with boron, due to its penetration between the grains, hereby impeding diffusion processes. Moreover, boron, being chemically active, removes oxides and other harmful compounds from the grain boundaries and this also contributes to the heat resistance of steel. Under the effect of cerium, sulfur separates in the form of inclusions of a very fine acicular phase, distributed evenly in the crystal structure. Even a slow cooling of the steel does not cause the redistribution of sulfur, proving that it became surface-inactive. Cerium has a similar effect on phosphorus. The addition of calcium, magnesium and cerium, in general, reduces the number of non-metallic impurities in carbon and austenitic chrome-nickel steels. The purifying effect of modifying agents is not only explained by their deoxidizing capacity, but also by the fact that impurities are removed from the metal together with the

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vapors of calcium and magnesium, the degasification of the metal taking place at the same time. The modifying agents also affect the technological properties of steel: liquidity, shrinkage and crack-formation. The effect of modifying agents in this respect is connected with their effect on impurities and the change in the phase composition, the character of phase distribution and crystallization rate. There are 22 figures, 2 tables and 19 references: 16 Soviet-bloc and 3 non-Soviet-bloc. The references to English-language publications read as follows M. Hancen, Constitution of binary alloys, New York, 1958; Lillienquist, Michel-son, "Electric Furnaces Steel", v. 10, 1952



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23864

S/128/61/000/004/001/003  
A054/A133

18000' also 2807, 1413

AUTHORS: Demin, M. P., and Kreshchanovskiy, N. S.

TITLE: Problems of the methods of determining the crack resistance of steel

PERIODICAL: Liteynoye proizvodstvo, no. 4, 1961, 17 - 19

TEXT: As a rule, crack resistance of steels is determined by producing critical shrinkage stresses in the test specimens resulting in hot cracks. Crack formation is determined either qualitatively or quantitatively. In the first case annular specimens with a sand or a metallic core, or frames with reinforced strips are used, whereas for quantitative determination measuring instruments are employed. The technological specimen tests only indicate the crack formation. They are rather inaccurate and do not allow precise measuring, nor are they suitable for the purpose of following the kinetics of crack formation closely. When employing measuring instruments, however, it is possible to observe the mechanism of crack formation, to determine the temperature range and to convert the cracks into comparable absolute values, (kg or kg/sq cm). The drawback is that these instruments

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do not indicate the moment when the stress arises in the specimen, but this must be put down to the special nature of steel shrinkage. Observations prove that the results obtained with technological specimens and with the aid of instruments do not correspond to each other, (Fig. 3). For instance, the technological test of [13] (G13L) ferro-manganese steel. These deviations were found for steel expanding before shrinkage. In that case the pointer of the device first moves to the right, to point to the extreme right and only moves to the left through the neutral position when the shrinkage starts. Therefore, during its course from the left to the right there are no indications. This shortcoming of the measuring instrument (particularly in that of the TsNIITMASH) can be rectified by allowing the pin connecting the specimen with the spring to move freely, so that it does not remove the spring to the right. This is obtained by allowing for a gap between the left nut and the spring before operation. Moreover, the nut must be continuously in contact with the spring on the right side, while the pin is moving, however without loading the specimen prematurely. At the end of the pre-shrinkage expansion this nut must be pressed tightly to the spring. In this arrangement the idle motion of the spring is eliminated

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and it will indicate shrinkage under the same conditions as in the technological test. Fig. 8 contains data of carbon steel (a) and high-manganese steel (b) determined by the modified TsNIITMASH instrument. Minimum crack-resistance was found for carbon steel with a carbon content of 0.18 - 0.20%. This corresponds to the results obtained in technological tests. There are 8 figures and 10 references: 8 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English-language publication reads as follows: Middleton, Proserol, "Journ. of the Iron and Steel Inst.", no. 4, 1951.

Fig. 3. Crack-resistance values obtained with instruments, upper curves [Ref. 5: see English publication; Ref. 6: Heier, Pivowarski E. "Giesserei", no. 11, 1955; Ref. 7: Trubitsyn, N. A. Issledovaniye vliyaniya nekotorykh metallurgicheskikh faktorov na obrazovaniye goryachikh treshchin usadochnogo proiskhozhdeniya v stal'nykh otlivkakh (Investigating the Effect of Some Metallurgical Factors on the Formation of Hot Cracks of Shrinkage Origin in Steel Castings), kandidatskaya dissertatsiya, TsNIITMASH, M. 1958; by technological tests, lower curves Ref. 1: Ryzhikov, A. A. Teoreticheskiye osnovy liteynogo proizvodstva (Theoretical Bases of Foundry Practice), 1954; Ref. 2: Levin, S. L. et al. "Liteynoye proizvodstvo", no. 8, 1955; Ref. 3:

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Fig. 3. (continued)

Yefimov, V. A. sb. "Voprosy proizvodstva stali", no. 3, izd. AN UkrSSR, Kiyev 1956 and by the UZTM. The digits on the curves refer to the references.]

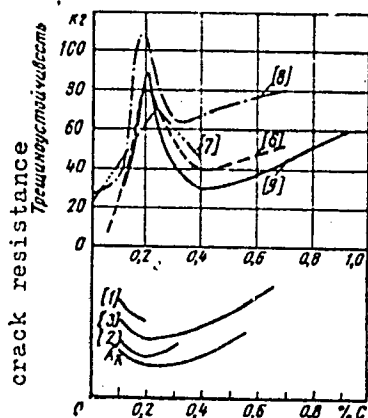
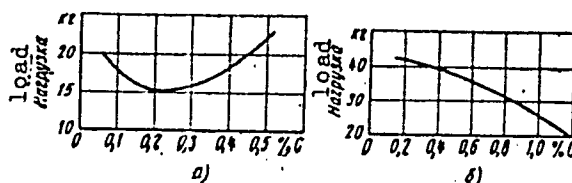


Fig. 8. Results obtained with the modified TsNIITMASH instrument

Legend: a - carbon steel, b - high-manganese steel.



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KRESHCHANOVSKIY, N.S.; SIDORENKO, M.F.

Cerium distribution in cast steel and its effect on the structure  
and properties of the steel. Lit.proizv. no.11:32-36 N '61.

(MIRA 14:10)

(Steel—Metallography)

(Cerium)



1223

S/146/62/000/001/008/015  
EO73/E535

18.1100

AUTHORS: Kreshchanovskiy, N.S. and Sidorenko, M.F.  
TITLE: Relation between the properties of the steel in the liquid and solid states  
PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, no.1, 1962, 151-156  
TEXT: The authors made an attempt to establish a relation between the properties of the steel in the liquid and solid states and to study the influence of over-heating of the melt on these properties. Since the use of diffraction methods for this purpose is very difficult, particular attention was paid to indirect methods, namely, to measuring the changes in viscosity and electric resistance. For this purpose an instrument was built which permits combining measuring the kinematic viscosity (from the damping of free torsional oscillations of a cylindrical crucible with the melt) and measuring the electric resistance, from a quantity which is inversely proportional to the steady state torsion angle of the specimen inside a rotating magnetic field. The investigations were made on carbon and alloy steels. The Card 1/3

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viscosity was determined on molten electrolytic iron, which was previously remelted in a crucible vacuum furnace ( $10^{-4}$  mm Hg) and additionally refined in an electron beam furnace. In the case of steel, the viscosity was determined for specimens melted both in an open induction furnace and in vacuum. During heating in the range of 1545 to 1610°C, the viscosity changes from 10.6 to 9.2 millistokes, which is fully in agreement with published values, regardless of the fact that the compositions of the irons differed. A slight temperature hysteresis was detected in the viscosity and electric resistance of super-cooled iron, which leads to the assumption that the structure of liquid iron during heating is not the same as during cooling. Hysteresis in the viscosity and electric resistance was also observed for alloy steels and this leads to the assumption that metallic melts contain complexes which bring about the formation of a heterogeneous structure. It was found that for each of the tested steels there is a critical melt temperature at which the liquid melt will have a quasi-homogeneous structure leading to maximum impact strength and ductility in the solid state. In order to

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achieve the required "critical melt temperatures", special technological processes are required for some of the alloys which ensure a high temperature combined with protection against enrichment with gas. The authors conclude that extensive investigations of the physical properties of steels and alloys will be required for the purpose of determining their "critical melt temperatures". There are 4 figures and 8 references: 5 Soviet-bloc and 5 non-Soviet-bloc. The English-language references read as follows: Ref.6: K. Barfield, I. Kitchener. Iron Steel Inst., 1955, 180, 4; Ref.7: G. Cavalier. c.r. Acad.Sci., 1957, No.21,244.

ASSOCIATIONS: Moskovskiy energeticheskiy institut  
(Moscow Power Engineering Institute) and  
TsNIITMASH

SUBMITTED: March 21, 1961

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S/128/62/000/011/001/001  
A004/A127

AUTHORS: Kreshchanovskiy, N. S., Nazarenko, V. R., Demin, M. P.

TITLE: The effect of modifiers on the casting properties of pearlite steels

PERIODICAL: Liteynoye proizvodstvo, no. 11, 1962, 3 - 4

TEXT: The authors investigated the effect of modifiers particularly on the crack resistance of 15X1M1ΦЛ (15Kh1M1FL) steel of the pearlitic class, which is especially used with high temperatures and high pressures. The following steel composition was tested: 0.14 - 0.20% C, 0.17 - 0.37% Si, 0.4 - 0.7% Mn, 0.9 - 1.2% Mo, 1.2 - 1.7% Cr, 0.25 - 0.40% V, 0.03% S and 0.03% P. According to technical specifications, the steel was to have the following values:  $\sigma_b = 50 \text{ kg/mm}^2$ ,  $\sigma_s = 35 \div 55 \text{ kg/mm}^2$ ,  $\delta = 12\%$ ,  $\psi = 30\%$  and  $a_k = 3 \text{ kgm/cm}^2$ . The steel was modified in the pouring ladle. Zr, Ba, Ti and Ce were used as modifiers in the form of ferro-alloys. The crack resistance was studied on a TsNIITMASH device and on technological specimens. The highest effect in increasing the crack resistance was obtained with the addition of 0.10 - 0.15% Ce, while increasing the cerium addition to 0.3 - 0.4% resulted in a sharp decrease of the crack

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